

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

DOCKET NO. 6860

Petitions of Vermont Electric Power Company Inc.)
(VELCO) and Green Mountain Power)
Corporation (GMP) for a certificate of public good,)
pursuant to 30 V.S.A. Section 248, authorizing)
VELCO to construct the so-called Northwest)
Reliability Project)

SUPPLEMENTAL DIRECT TESTIMONY OF

Hans E. Mertens

ON BEHALF OF THE

VERMONT DEPARTMENT OF PUBLIC SERVICE

May 20, 2004

Summary: Mr. Mertens' testimony summarizes the Department's overall position regarding the VELCO Rerouting Proposal, and address several related issues, including but not limited to reliability, and impacts of the proposed corridor changes.

Table of Contents

| | |
|--|----------|
| BACKGROUND AND QUALIFICATIONS | 1 |
| PURPOSE AND SUMMARY POSITION | 1 |
| RELIABILITY | 2 |
| REGIONAL COST TREATMENT..... | 2 |
| ELECTROMAGNETIC FIELDS | 2 |
| AESTHETICS AND LIGHTING | 3 |
| CORRIDOR CHANGES | 4 |

**SUPPLEMENTAL DIRECT TESTIMONY OF
HANS E. MERTENS**

**ON BEHALF OF
VERMONT DEPARTMENT OF PUBLIC SERVICE**

BACKGROUND AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Hans Mertens. My business address is Vermont Department of Public Service ("DPS"), 112 Sate Street, Montpelier, VT 05620. I am employed by the Department as Director of Engineering Services and Chief Engineer.

Q. Have you previously provided testimony in this case?

A. Yes.

PURPOSE AND SUMMARY POSITION

Q. What is the purpose of your supplemental testimony in this proceeding?

A. I will summarize the Department's overall position regarding the VELCO NRP Rerouting Proposal, and address several related issues, including but not limited to reliability, and impacts of the proposed corridor changes.

Q. Please provide a concise statement of the Department's overall position with respect to the revised NRP Routes.

A. In addition to VELCO's February 6, 2004 Reroute Proposals, the DPS has identified an alternative to the Charlotte Reroute that solves additional concerns. In general, the revised routes make desirable trade-offs (such as: relocating the route from a more densely populated, existing corridor, to a less densely populated, new corridor) while resulting in a slight cost increase. Importantly, all proposals provide the same level of bulk transmission system service to meet future load, while better meeting the needs of local government and most residents. As described later, DPS believes that most of the changes represent satisfactory compromises and

1 are worth the relatively small incremental cost. There are, however, a few areas where DPS
2 disagrees with VELCO's proposal.
3

4 **RELIABILITY**

5 Q. How do the changes impact reliability?

6 A. As detailed in DPS witnesses George Smith and Steve Litkovitz's (Smith/Litkovitz) testimony,
7 the reconfiguration in Vergennes results in somewhat less reliability to the GMP Vergennes
8 substation than that provided by the originally proposed NRP. However, this reconfiguration
9 would have no adverse impact on the reliability or the performance of the bulk transmission
10 system. This proposal does represent an improvement over the status quo. The other
11 proposed overhead reroutes do not adversely impact reliability. Overall, we find that the
12 resulting reliability of the bulk system, with the proposed reroutes, is no less than with the
13 original NRP.
14

15 **REGIONAL COST TREATMENT**

16 Q. Are there additional costs related to the reroute and aesthetic mitigation?

17 A. Yes. However, the additional costs are estimated to be less than 1% of the original NRP. These
18 incremental costs do not change the conclusion that the transmission upgrade is more favorable
19 than the other solutions.
20

21 Q. Do you have an opinion regarding the likelihood of regionalized cost treatment for the reroute
22 work?

23 A. I expect that a large part of incremental costs associated with the reroute would qualify for PTF
24 treatment. It represents an appropriate level of fine tuning that is envisioned by the ISO
25 process. Distribution improvements would probably not qualify for PTF treatment.
26

27 **ELECTROMAGNETIC FIELDS**

28 Q Do you have any observations regarding the Health Department's Position Paper on EMF as it
29 relates to the Reroute Proposal?

30 A Yes. The Health Department concludes that neither the Reroute nor changes to structure
31 heights made in the interest of aesthetic mitigation adversely impact their original conclusion.

1 With regard to the overhead proposal, they reaffirm that modifications to the NRP are not
2 required for health reasons.

3 Significantly, the Health Department has not performed an analysis that quantifies the EMF
4 exposure from underground electric transmission lines. In the event a portion of the NRP is
5 undergrounded, an analysis would be necessary for reasons it states in its report.
6

7 **AESTHETICS AND LIGHTING**

8 Q. Does the Reroute pose any aesthetic concerns?

9 A. Yes. DPS witness David Raphael has evaluated the reroutes and determined that there are
10 some areas – New Haven and Charlotte – where the VELCO alternatives may have undue
11 adverse impacts if they are not adequately addressed as described in Mr. Raphael's Reroute
12 Alternative Report and below.
13

14 Q. What is the DPS approach in this case to resolving problematic aesthetic areas?

15 A. The DPS approach is to identify areas along the route where the proposed construction might
16 have an undue adverse impact on the viewshed and then develop a mitigation strategy. In the
17 event a particular segment might have an undue adverse impact if constructed, we work to
18 determine if suitable measures can be designed to alleviate the problem. Corrective action may
19 include anything that improves the condition in a cost effective manner - including plants for
20 screening, suggesting a reroute and making design changes, giving due consideration that the
21 solution does not impair the normal operation of the grid nor jeopardize overall reliability. In this
22 regard, DPS does not preclude undergrounding line segments as a tool; however, there are
23 numerous adverse characteristics associated with this approach. Therefore, we want to
24 explore other viable options to their fullest, before embracing this alternative.
25

26 Q Does DPS recommend undergrounding any segments to mitigate identified aesthetic concerns?

27 A. Not in this case. There is no question that undergrounding solves some aesthetic problems.
28 However, the DPS continues to believe that where an overhead transmission line can be built
29 and satisfy the aesthetic criteria with the appropriate combination of facility design, equipment
30 selection, and landscaping, this represents the most desirable outcome.
31

32 Q. Do VELCO's station lighting plans cause any adverse impact?

1 A. VELCO has not provided photometric plans for many of the proposed or expanded
2 substations. Available information suggests the proposed site lighting has the potential to cause
3 light trespass, and glare; thereby, impacting the context and character of the neighborhood. We
4 recommend, as detailed in Mr. Raphael's report on substation lighting, that the Board require
5 VELCO to provide the information recommended by Mr. Raphael and employ appropriate
6 screening and other engineered measures to mitigate the impact of station lighting.
7 It is also important to note that any reduced lighting level must be balanced with security
8 concerns that the Vermont Homeland Security Unit (HSU) group may recommend. We know
9 that the HSU has employed a consultant to enhance security at selected critical infrastructure
10 locations. Often this translates to more intense lighting rather than less. DPS recommends that
11 the Board require VELCO to adopt Mr. Raphael's measures, subject to HSU review. If the
12 HSU raises issues with these measures, VELCO would need to return to the Board for
13 approval of any modifications.
14

15 Q. Has VELCO's addressed noise abatement at the proposed substations?

16 A. No, although VELCO stated in discovery that it would. At this time, more data and information
17 is needed on the issue of noise. Particular to the Reroute, each of the new or enlarged
18 substations may require noise mitigation measures. DPS affirms its previous recommendation
19 that VELCO be required to study the noise issue and develop an appropriate mitigation
20 strategy.
21

22 **CORRIDOR CHANGES**

23 Q. Given the stated preference of the Board and ANR to favor using existing utility corridors
24 rather than creating new ones, does the DPS support opening new corridors as described in the
25 proposed Reroute?

26 A. Many of the existing corridors have been encroached by population growth and are in some
27 cases no longer desirable for high voltage transmission lines due to the need to set larger
28 structures, increase the ROW and being responsive to residents' concerns. VELCO has done a
29 good job in remaining in most existing corridors while upgrading voltages to 115kV.
30 The new Reroute corridors utilize, for the most part, railroad ROW and avoid population
31 centers more effectively than the original proposal. Still, in Charlotte and Shelburne, as
32 discussed later, DPS believes better alternatives exist than VELCO has proposed.

1
2 Q. Does the DPS support the proposed Vergennes Reroute?

3 A. Yes. DPS's review of this Reroute suggest this change is in the best interest of the parties and
4 results in acceptable trade offs. Reliability was one of our major concerns. However, as
5 detailed in VELCO's testimony and reviewed by DPS witnesses Smith/Litkovitz, the
6 performance of the reconfiguration is acceptable especially in light of the additional precautions
7 planned by GMP in maintaining spare equipment on site and assuring ROW maintenance for
8 this radial 34.5kV line segment is given priority.

9 Q. Does the DPS support the proposed Ferrisburg Reroute?

10 A. We support the proposed rerouting in this area and find it is complimentary to the Vergennes
11 Reroute.
12

13 Q. Does the DPS support the proposed Charlotte Reroute?

14 A. We agree a reroute is desirable in the area VELCO identified; however, as described in
15 Raphael's testimony we do not support the VELCO proposal here. Rather, we recommend an
16 alternate path to accomplish the Reroute which is fully described in Raphael's testimony.
17

18 Q. Does the DPS support the proposed Shelburne Reroute?

19 A. From an aesthetic view point, DPS views the reroute as an improvement over the current state,
20 as well as the original proposal. We are aware, however, that ANR has expressed some
21 specific concerns with regard to impacts on wetlands. ANR has met with VELCO and together
22 we understand that they have identified another alternative that leaves the "Original Proposed
23 Route" corridor at about station 21.5, then parallels Limerick Road and then rejoins the
24 "Proposed Alternate Shelburne Reroute" corridor at station 0.4. DPS will take a position on
25 this additional alternative once this issue is clarified and we are able to evaluate the Reroute
26 from an aesthetic perspective.
27

28 Q. Does DPS support VELCO's proposed changes at the Route 17 crossing in New Haven?

29 A. No. Mr. Raphael addresses this in his Reroute Report. The DPS is concerned about the Route
30 17 highway crossing at the New Haven substation. This is a highly sensitive area and our
31 original mitigation recommendations, as reflected in Mr. Raphael's initial report (pages 19-20),
32 are affirmed.

1 Q. Do you have anything to add concerning the Department's position?

2 A. Yes. The Department's analysis and position are based on the information and evaluation to
3 date. DPS has not seen the evidence other parties may provide on the reroutes. In addition,
4 DPS understands that VELCO will be filing further prefiled testimony and exhibits today.
5 Consistent with its responsibilities under Title 30, DPS reserves the right to re-evaluate its
6 position on the reroutes based on further information that may be provided in this proceeding.

7

8 Q. Does this conclude your supplemental testimony?

9 A. Yes.